airbnb

NEW YORK

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Agenda

Problem Statement:

Suppose that you are working as a data analyst at Airbnb. For the past few months, Airbnb has seen a **major decline in revenue**. Now that the restrictions have started lifting and people have started to travel more, Airbnb wants to make sure that it is **fully prepared** for this change.

End Objective :

To prepare for the next best steps that Airbnb needs to take as a business, you have been asked to **analyze a dataset** consisting of various Airbnb listings in New York

Pointers In Presentation:

- Different **Neighborhoods** and their Performance with respect to **Median Review Per Month**

  (Average is an alias used for median in this analysis)

- Neighborhoods to Focus *based on* **Best and Worst Performing**.

- Insights based on different **Room types.**

- Insights based on different **Price segments.**

- Insights based on **minimum Nights stay required** in a Listing.

221
Neighborhoods
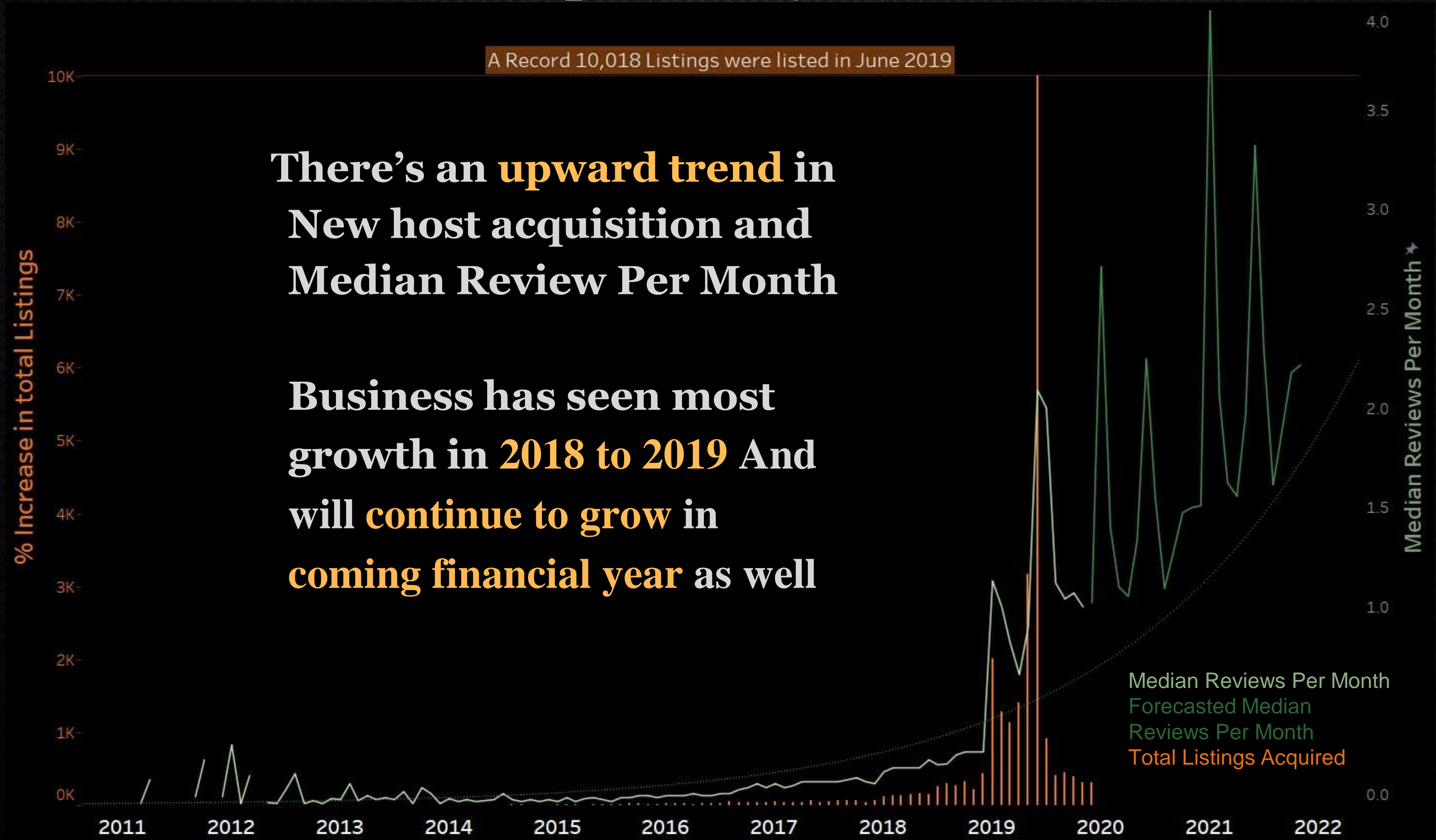
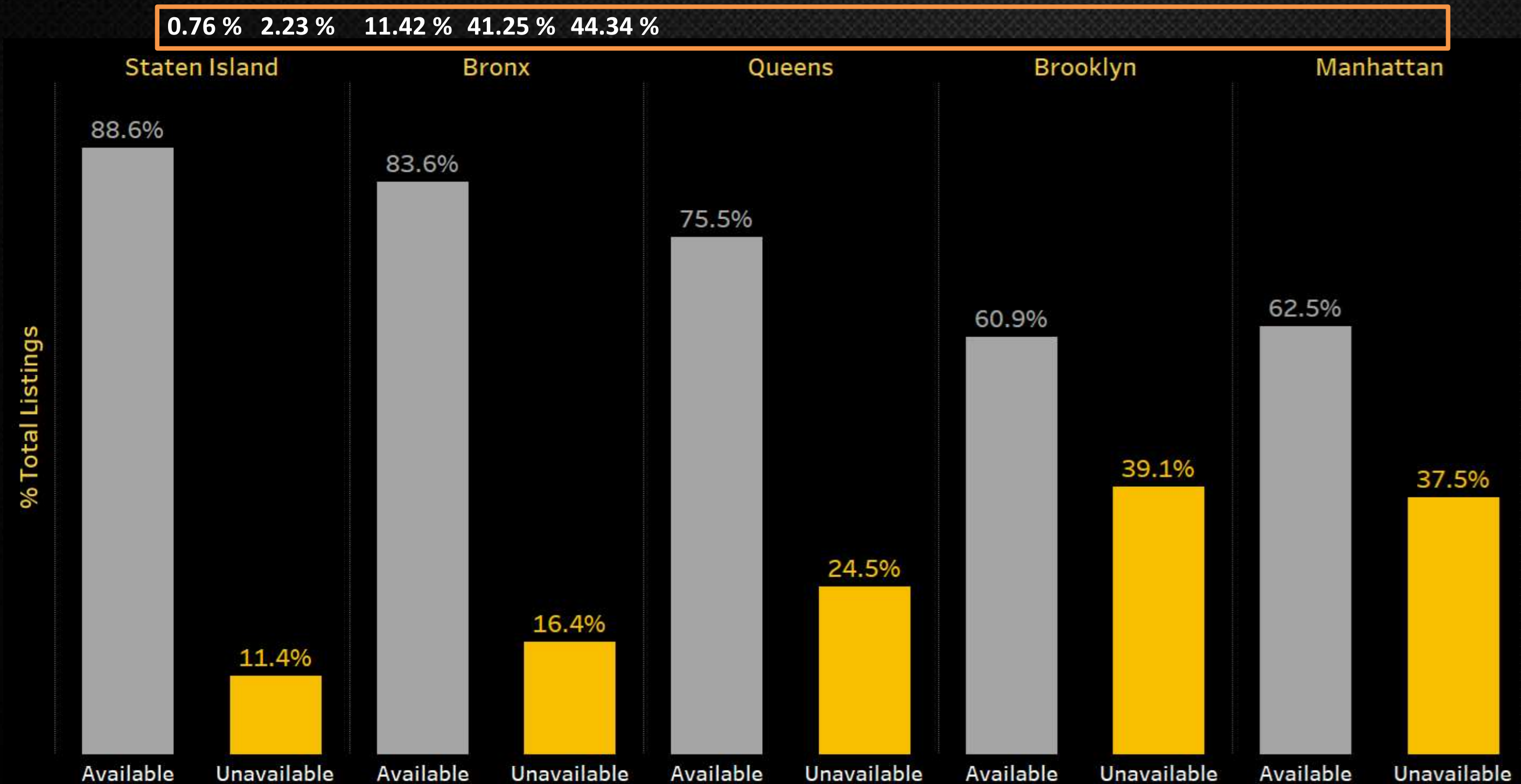**48k AirBnBs**
37k hosts

17k Inactive AirBnBs

The NY Market Size

New York has high potential for attracting guests

Increase in Total Active Listings & Median Reviews Per Month from previous year

A Record 10,018 Listings were listed in June 2019

There's an **upward trend** in New host acquisition and Median Review Per Month

Business has seen most growth in **2018 to 2019** And will **continue to grow** in **coming financial year** as well

Median Reviews Per Month
Forecasted Median Reviews Per Month
Total Listings Acquired

Active / Inactive Listings

% Listings out of total
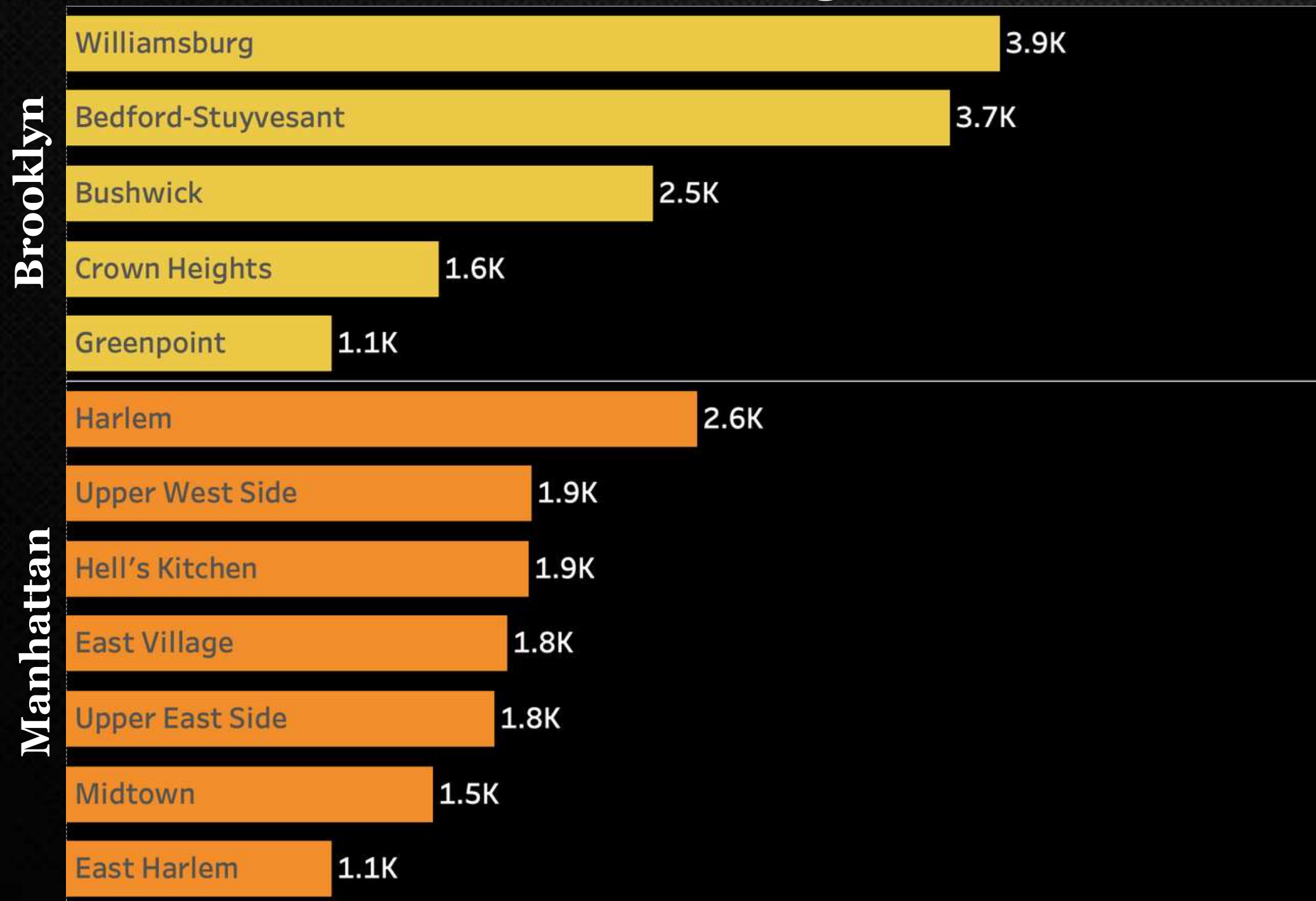
| 0.76 % | 2.23 % | 11.42 % | 41.25 % | 44.34 % |

Manhattan and Brooklyn have the most host listings
However, we can also observe that both have a significant number of unavailable hosts.

Neighbourhoods

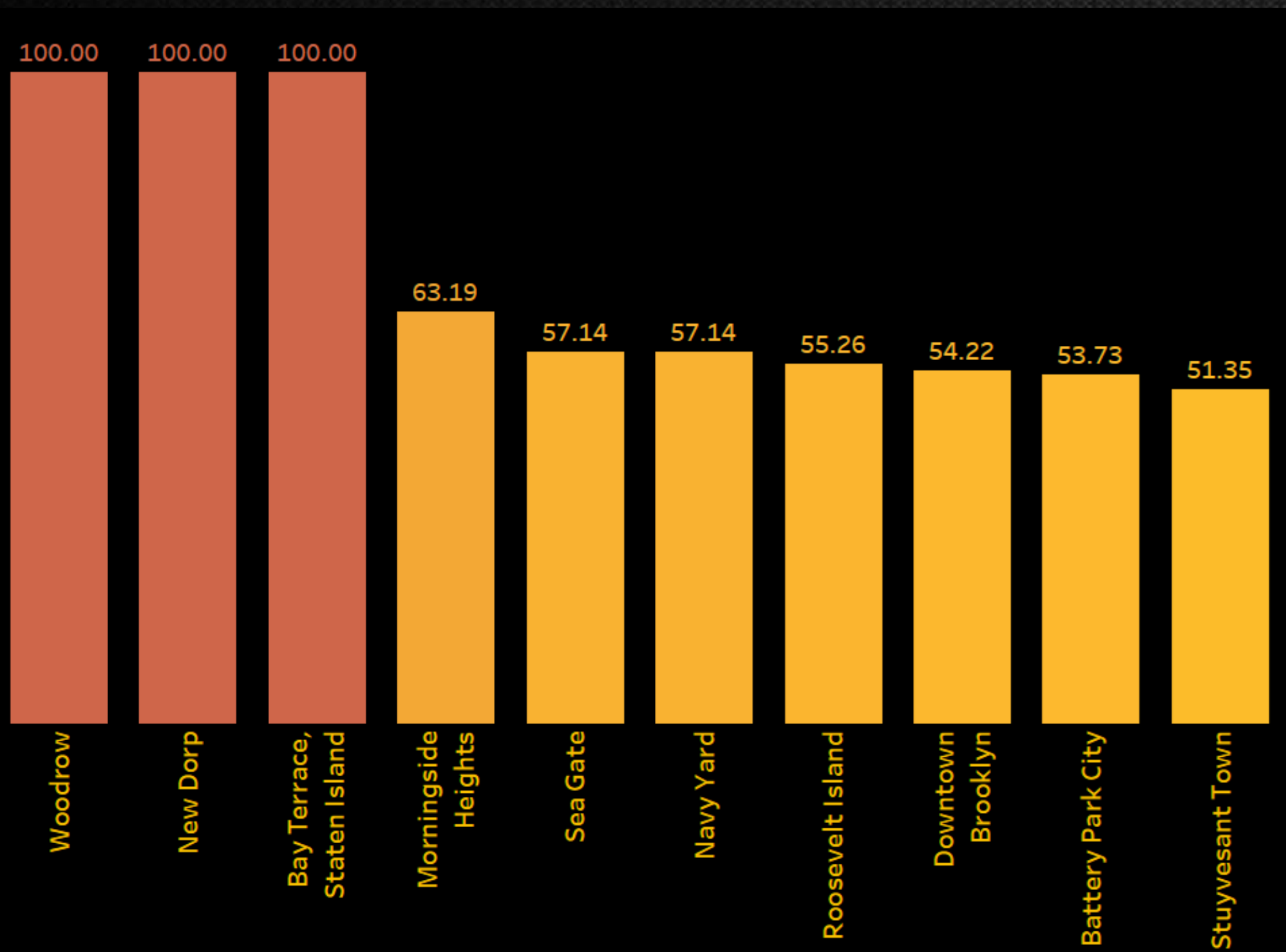**Top Neighbourhoods in Top Neighbourhood Groups**

Total Listings

Manhattan and Brooklyn are two of the most popular neighbourhood groups in New York.

Because of their strategic location, **they attract a huge number of people.**

Top Inactive Neighbourhoods and hosts

Top 10 Hosts with no active listings

Host Id	
15787004	5
24831061	8
32545798	5
51596474	12
51913826	8
100238132	12
160495098	5
180212824	5
187487947	6
193502084	8

15,601 hosts which account for 41.9% of total hosts are having all their listings unavailable for booking.
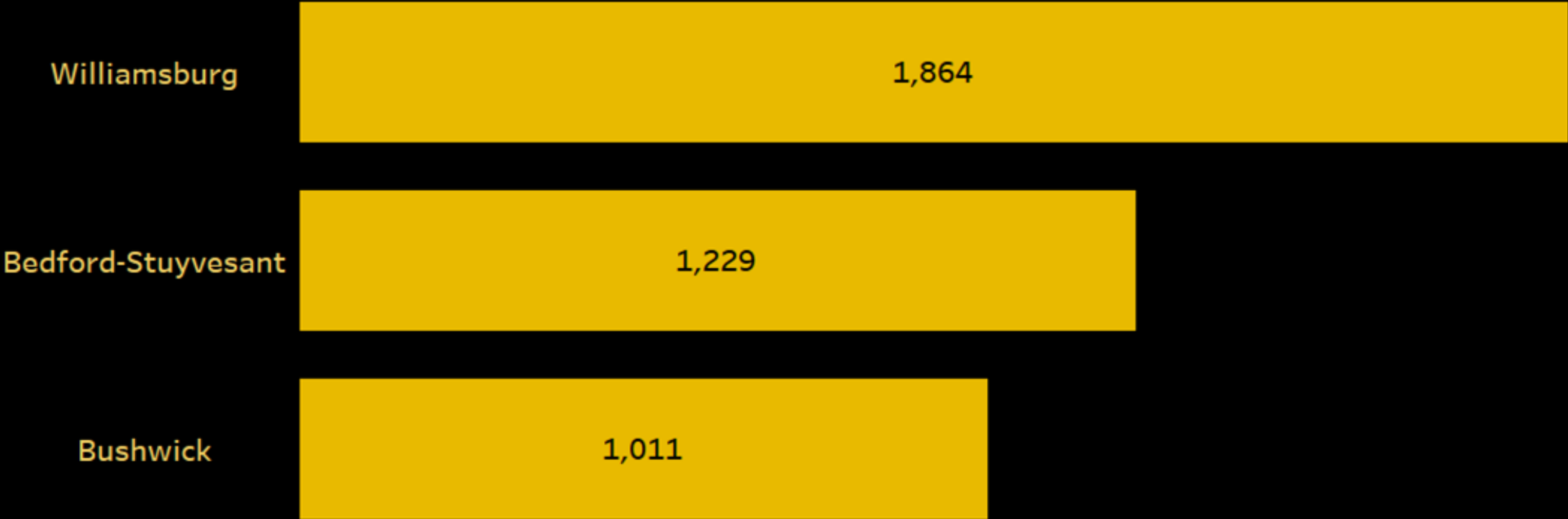
Suggestion:

Either we can reach out to those owners to **find reasons behind it** and **make those listings available**

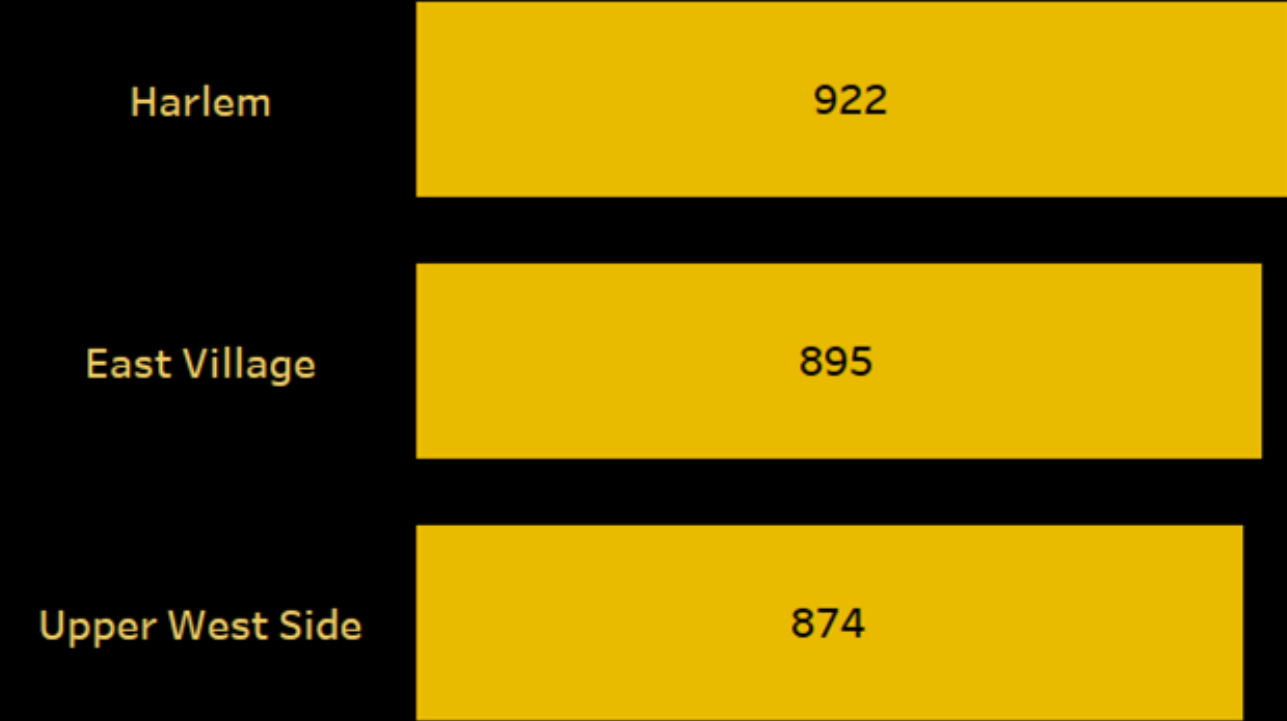Or we **recommend only active listings** to customers on our website

Most Inactive Neighborhoods
Manhattan & Brooklyn

These are the **Top 3 Neighborhoods** in Manhattan and Brooklyn With most inactive Airbnb's

Brooklyn

Williamsburg	1,864
Bedford-Stuyvesant	1,229
Bushwick	1,011

Manhattan

Harlem	922
East Village	895
Upper West Side	874

Neighbourhoods to Focus

Active Neighbourhoods with highest average reviews
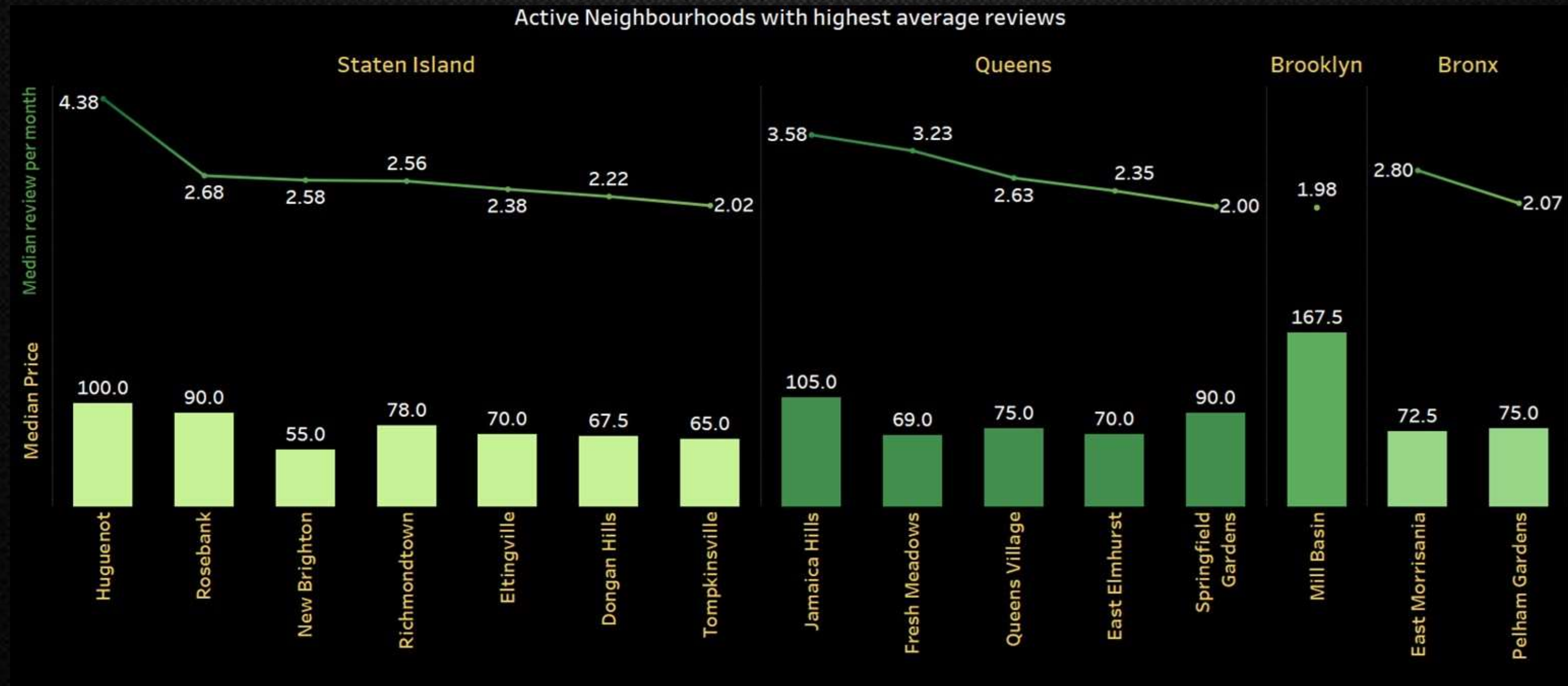
Manhattan and Brooklyn:
- Most Hosts
- Low Average Review

Staten Island, Queens & Bronx:
- Less Hosts
- High Average Review

Neighborhoods Worst Performing
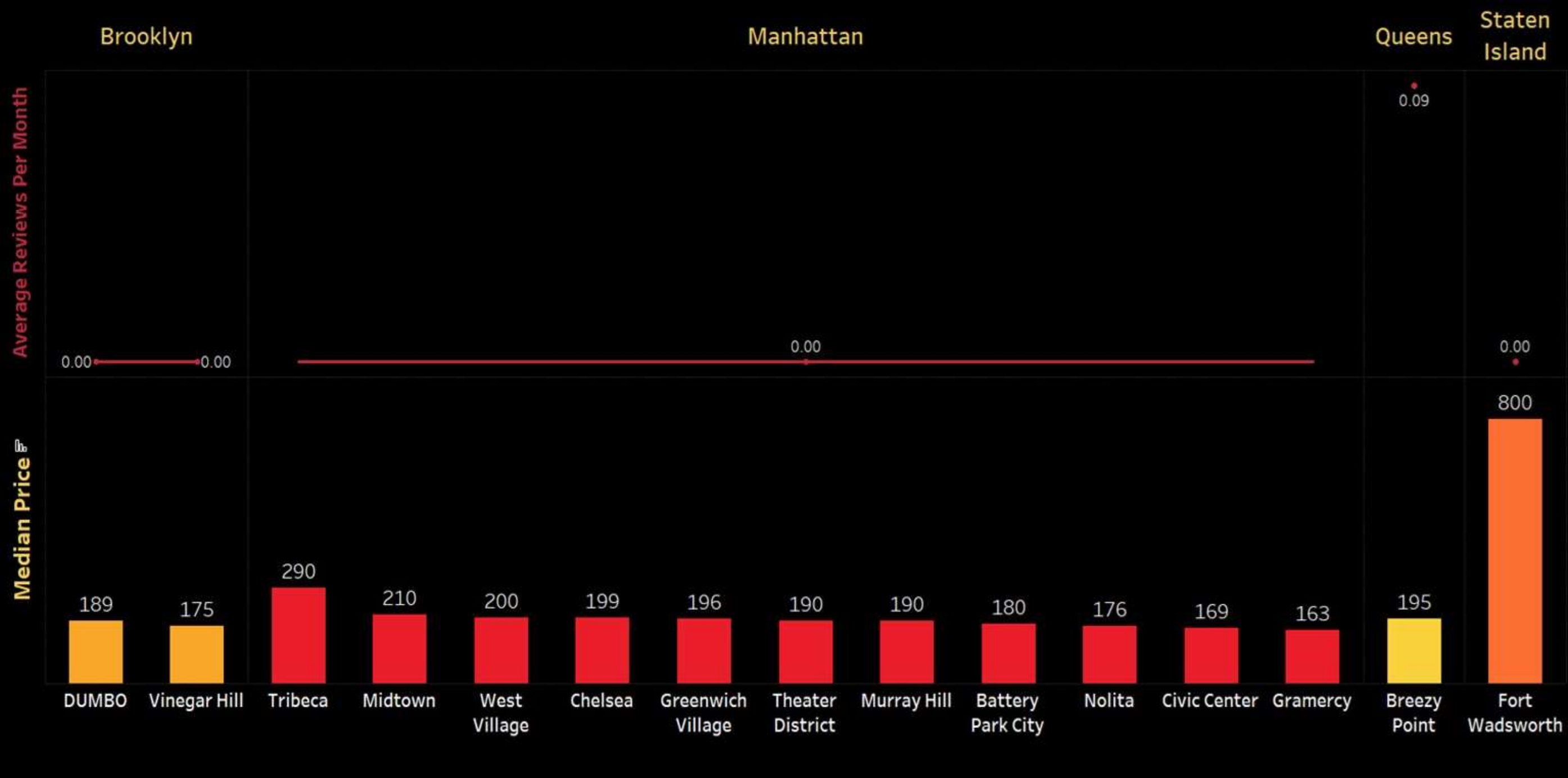
Total Neighborhoods

Bronx	5
Brooklyn	23
Manhattan	22
Queens	4
Staten Island	9

Suggestion:

We can **recommend** these Airbnb's **more on website** to get **more traction** to them

A total of **63 Neighborhoods** have average reviews **per month < 0.1**

Room Types

Shared room
2.8%

Private room
44.5%
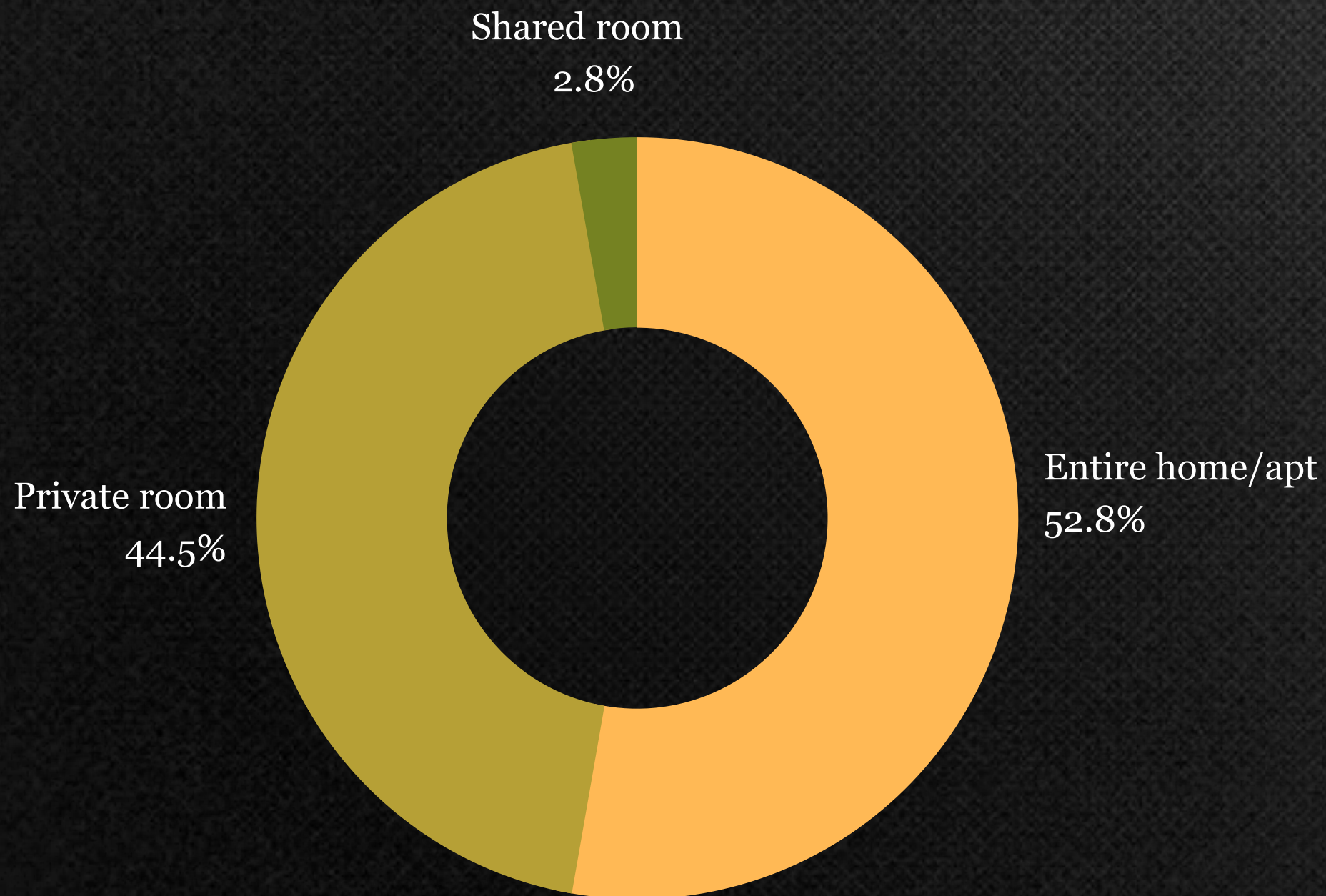
Entire home/apt
52.8%

Majority of Listings are **entire homes/apartments**, while **shared rooms** are **very minimum** in comparison

Entire home/apt — 199.5

Private room — 86.5

Shared room — 70.2

Avg Price
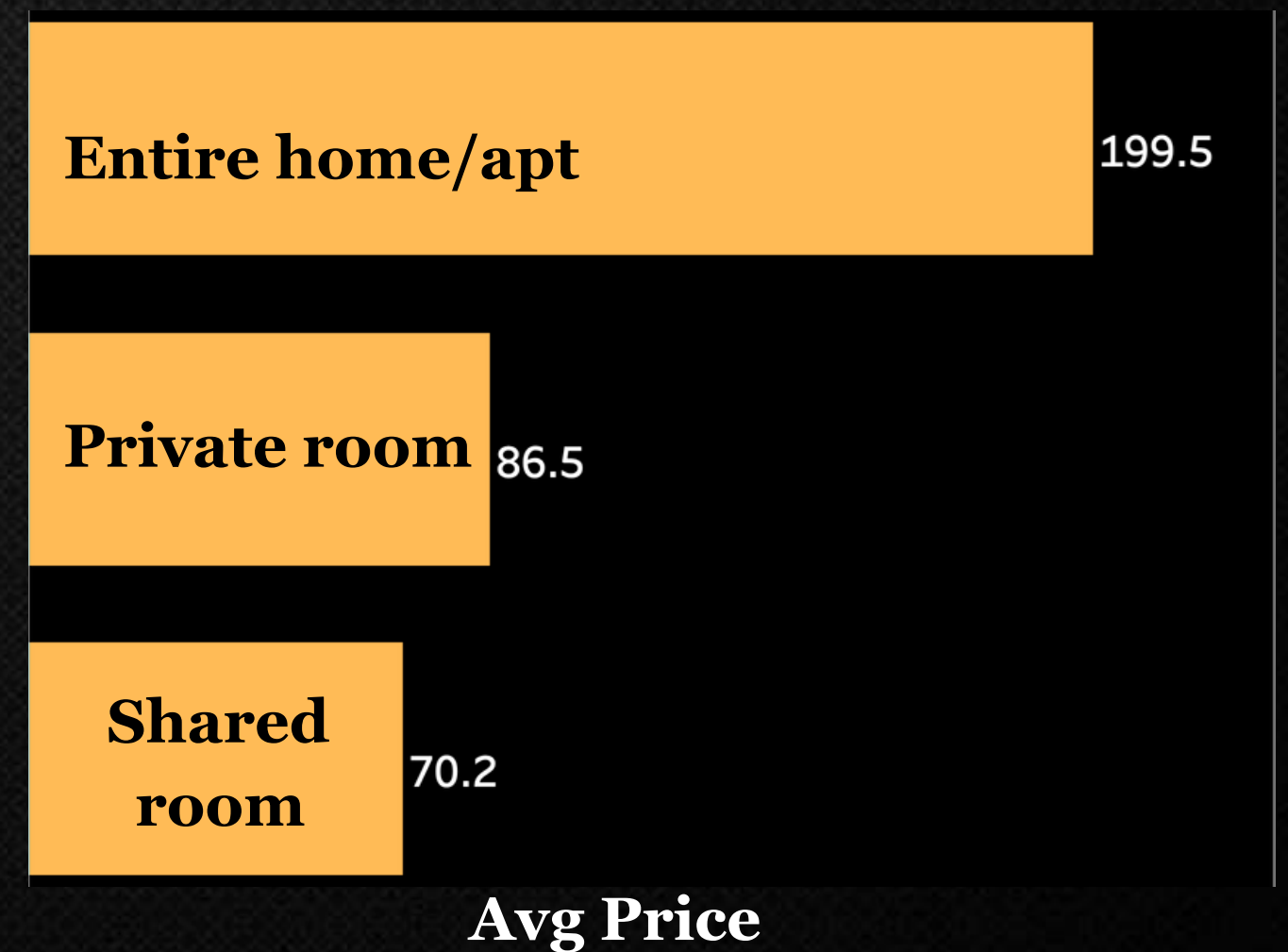
Average Reviews per Month for each Room Type in Neighbourhoods
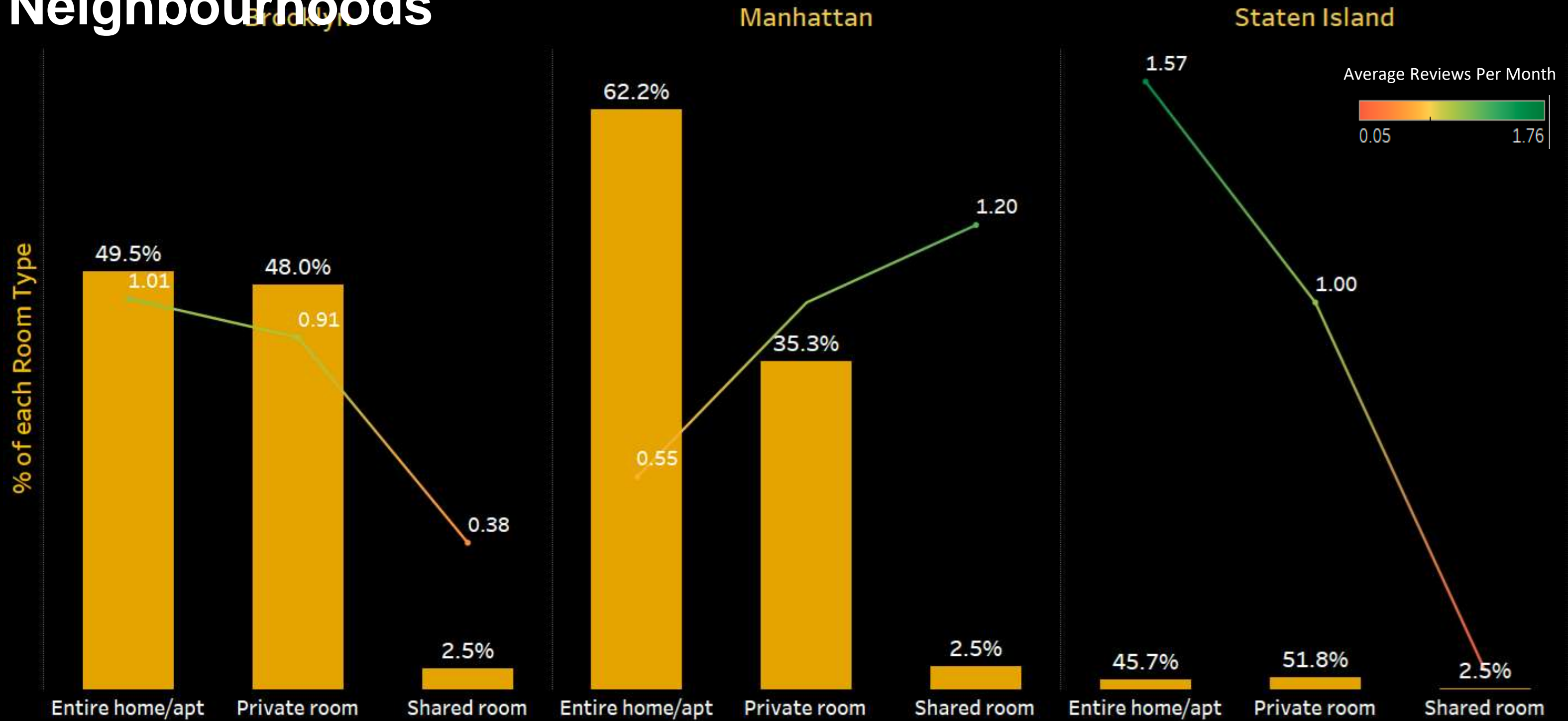
Even though **Brooklyn** and **Manhattan** are in **central New York.**
People in   Manhattan are **usings more shared rooms** on an average every month, which is a counter to the trend.

Average Reviews in each Price Segment vs Room Types

Average Reviews in each Price Segments vs Room types

Avg Review Per Month
0.05 — 1.76

0 - 150 $	Affordable
150 - 300 $	Medium
300 - 600 $	High
600 $ & above	Luxury

Entire home/apt — 1.00, 0.79, 0.59, 0.31
% of Total Listings: Affordable 43.35%, Medium 42.91%, High 10.95%, Luxury 2.79%

Private room — 0.42, 0.05
Affordable 92.77%, Medium 5.38%, High 1.33%, Luxury 0.53%

Shared room — 0.78, 0.10
Affordable 94.99%, Medium 3.26%, High 1.28%, Luxury 0.47%

In the higher price segment, **whole homes and apartments** receive **more reviews** each month than **private rooms and shared rooms.**

Price Range vs Neighbourhood Groups
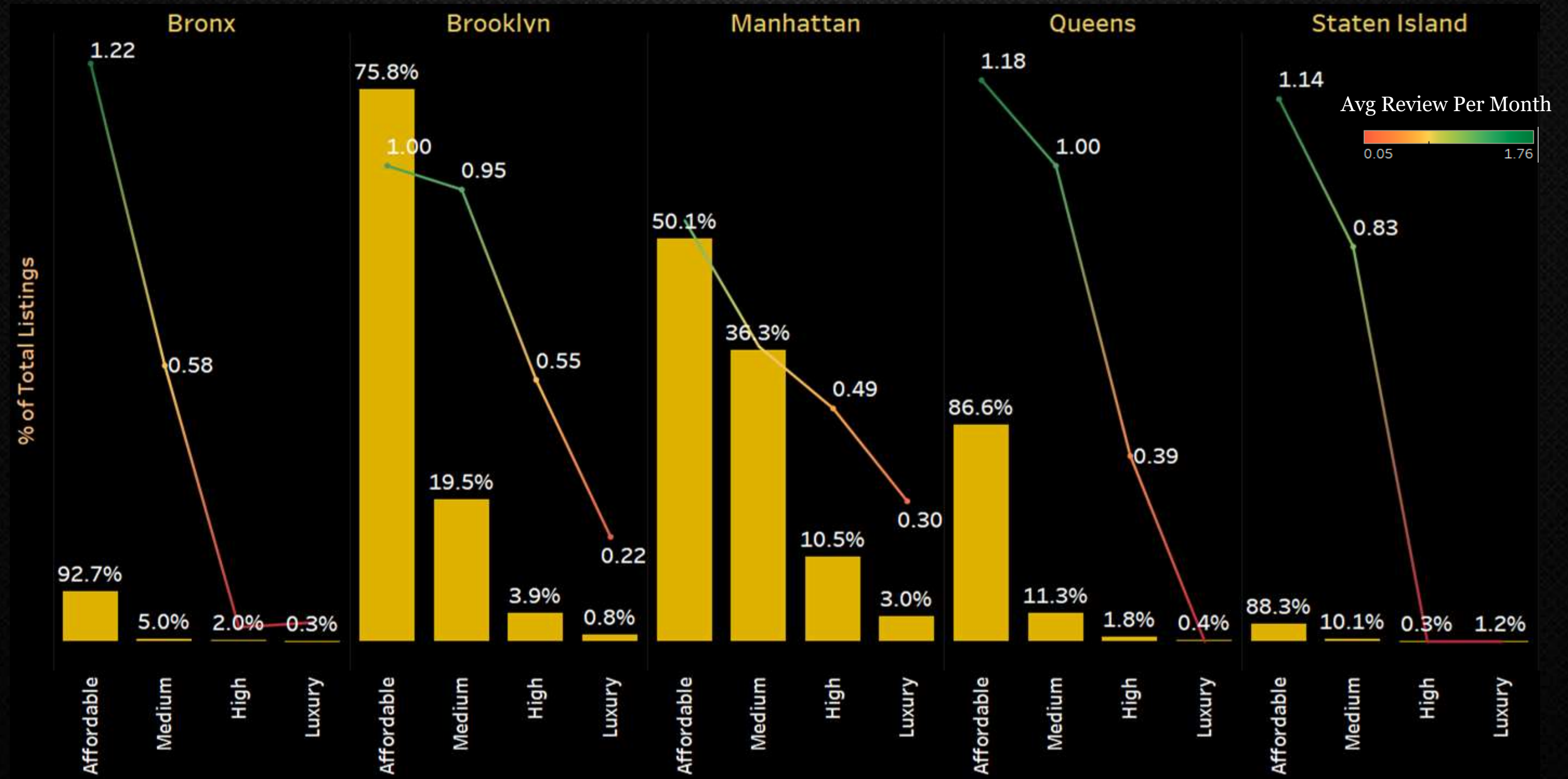
In **Brooklyn and   Manhattan**, Airbnb's in the **High and Luxury pricing**   ranges are   **preferred** above   other neighborhoods, which almost never receive any ratings.

Heatmap based on median Price*(as size)* and Reviews Per Month*(as color)*
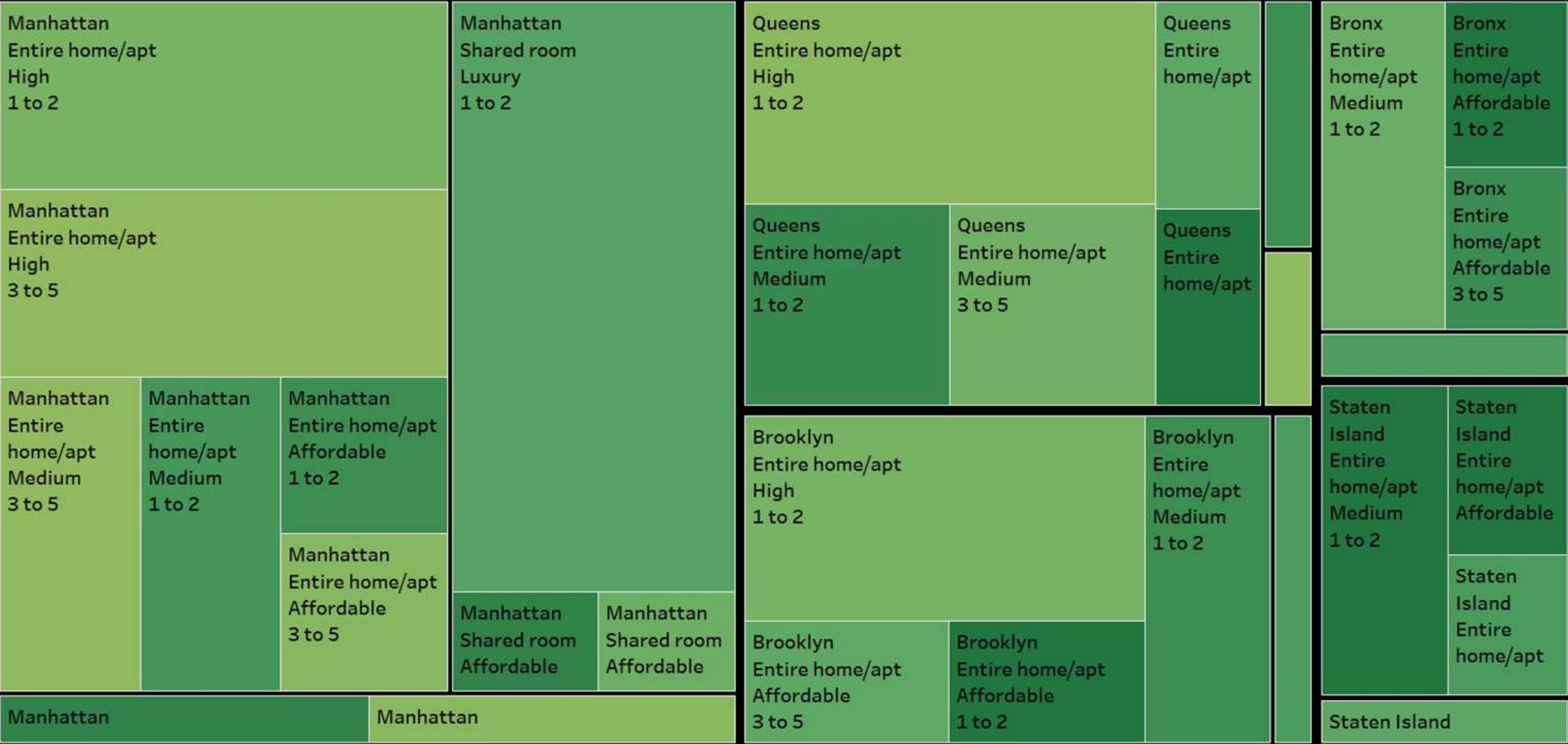
Manhattan
Entire home/apt
High
1 to 2

Manhattan
Entire home/apt
High
3 to 5

Manhattan
Entire
home/apt
Medium
3 to 5

Manhattan
Entire
home/apt
Medium
1 to 2

Manhattan
Entire home/apt
Affordable
1 to 2

Manhattan
Entire home/apt
Affordable
3 to 5

Manhattan

Manhattan
Shared room
Luxury
1 to 2

Manhattan
Shared room
Affordable

Manhattan
Shared room
Affordable

Manhattan

Queens
Entire home/apt
High
1 to 2

Queens
Entire home/apt
Medium
1 to 2

Queens
Entire home/apt
Medium
3 to 5

Queens
Entire
home/apt

Queens
Entire
home/apt

Brooklyn
Entire home/apt
High
1 to 2

Brooklyn
Entire home/apt
Affordable
3 to 5

Brooklyn
Entire home/apt
Affordable
1 to 2

Brooklyn
Entire
home/apt
Medium
1 to 2

Bronx
Entire
home/apt
Medium
1 to 2

Bronx
Entire
home/apt
Affordable
1 to 2

Bronx
Entire
home/apt
Affordable
3 to 5

Staten
Island
Entire
home/apt
Medium
1 to 2

Staten
Island
Entire
home/apt
Affordable

Staten
Island
Entire
home/apt

Staten Island

This Heatmap helps us identify which **Room Types** in Different **Price segments** with different **minimum nights stay** required are **attracting** the **greatest number of guests** in each **Neighborhood**

Recommendations

Encourage hosts to keep minimum stay required between 1 to 5 nights as it is preferred by large number of customers.

Manhattan:
- Entire Home/apt- Focus more on listings in Affordable, Medium & High price segments
- Private Rooms- Focus more listings in Affordable & Medium (*min. 1-2 nights stay*) price segments
- Shared Rooms- Focus more listings in Affordable, Luxury & Medium(*min. 11-30 nights stay*) price segments

Brooklyn:
- Entire Home/apt- Focus more on in Affordable & High price segments
- Private Rooms- Focus more on listings in Affordable price segment having minimum stay required of 1 or 2 nights
- Shared Rooms- Focus more on listings in Affordable price segment. Limit acquiring other price segment listings.

Queens:
- Entire Home/apt- Focus more on listings in Affordable, Medium & High(*min. 1-2 nights stay*) price segments
- Private Rooms- Focus more on listings in Affordable price segment with min. stay required of 1 to 2 nights
- Shared Rooms- Focus more on listings in Affordable price segment with min. stay required of 1 to 2 nights

Bronx & Staten Island:
- Entire Home/apt- Focus more on listings in Affordable & Medium(*min. 1-2 nights stay*) price segments
- Private Rooms- Focus more on in Affordable & High price segments
- Shared Rooms- Shared rooms are not attracting much hosts in both Bronx and Staten Island

Appendix

Data Methodology:

- Data was cleaned and null values were imputed
- The Data had **Large number of outliers** which were handled by appropriate methods
- A **detailed summary** of approach is documented in the **Methodology Document**
- **Recommendations** we derives using **Heatmaps** analysing all aspects

Data Assumptions:

- **Reviews Per Month** was considered as a normalized quantitative measure for aspect of **popularity**.
- Instead of **Average**, **Median** was assumed as the **adjusted average** due to **presence of outliers**
- Listings which were **not available for booking**(*availability 365 = 0*) were **considered inactive**
- Majority of analysis was performed on **active listings**